FIG. 1

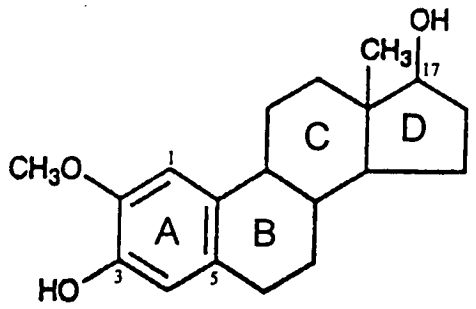
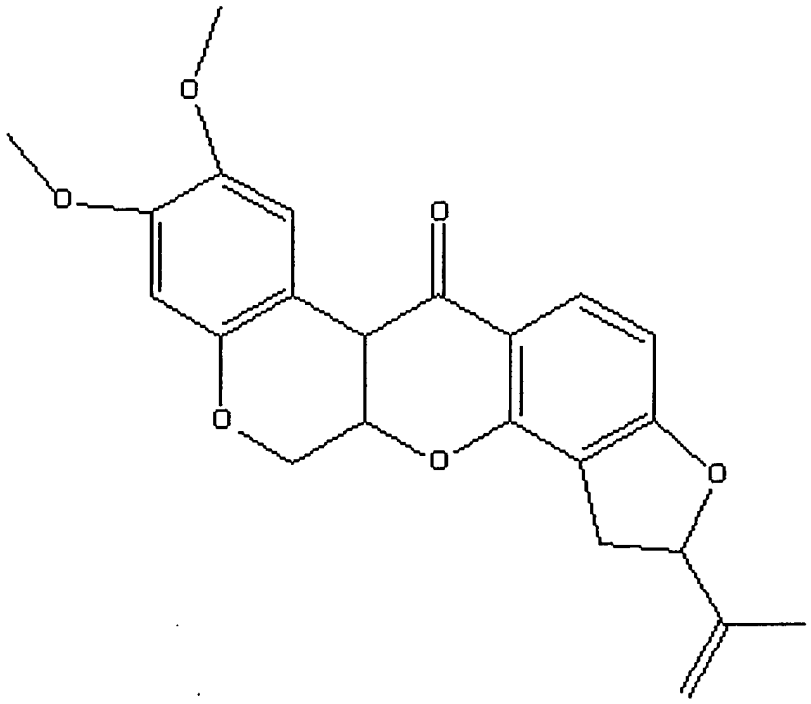


FIG. 2



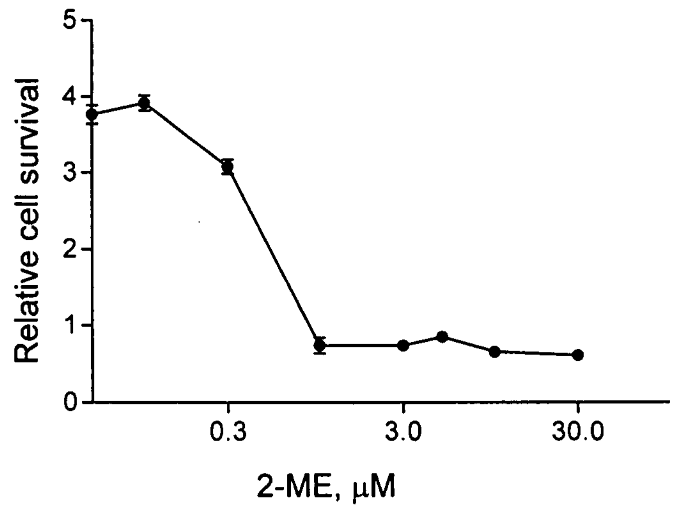


FIG. 3

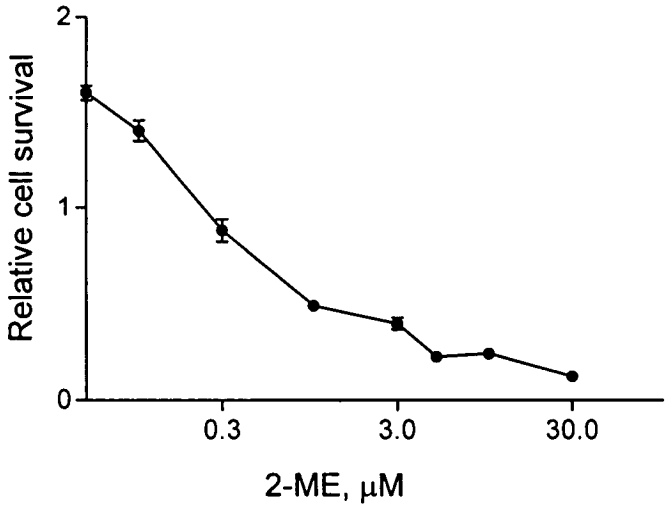
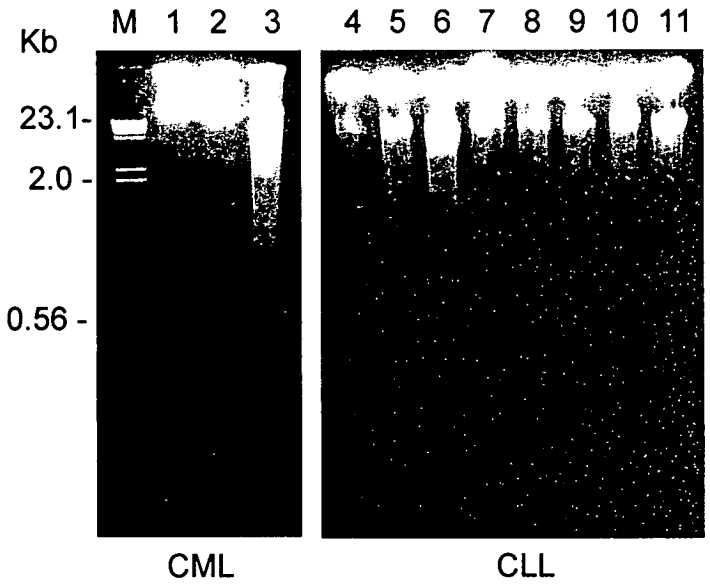


FIG. 4



CML cells:
1, Control
2, ara-C, 1 μM
3, 2-ME, 10 μM

CLL cells:
4, Control
5, 2-ME, 10 μM
6. 2-ME, 30 μM
7, F-ara-A, 1 μM
8. F-ara-A, 3 μM
9. F-ara-A, 10 μM
10. M 10 + F1
11. M 10 + F3

FIG. 5

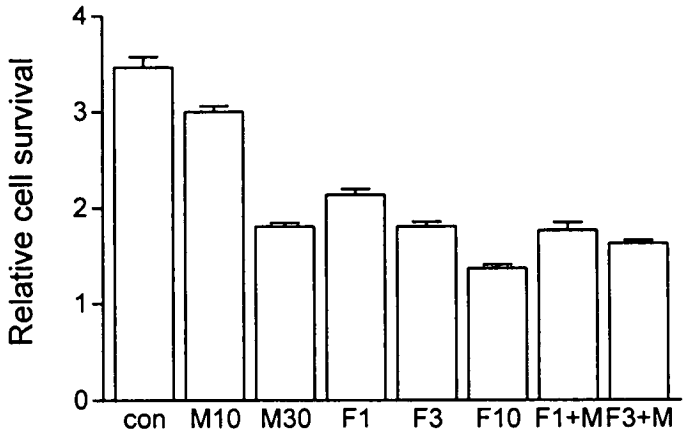


FIG. 6

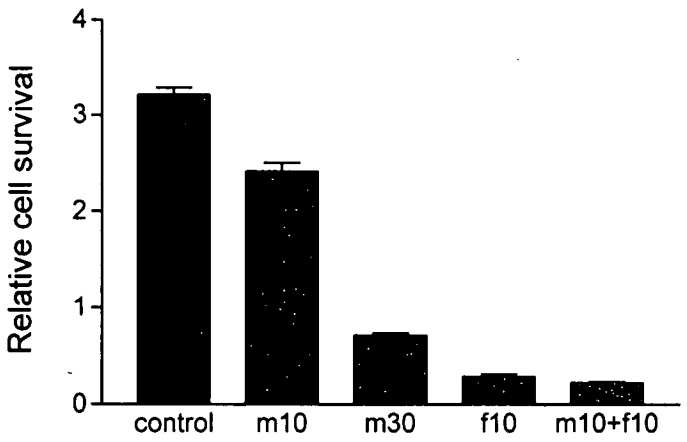


FIG. 7

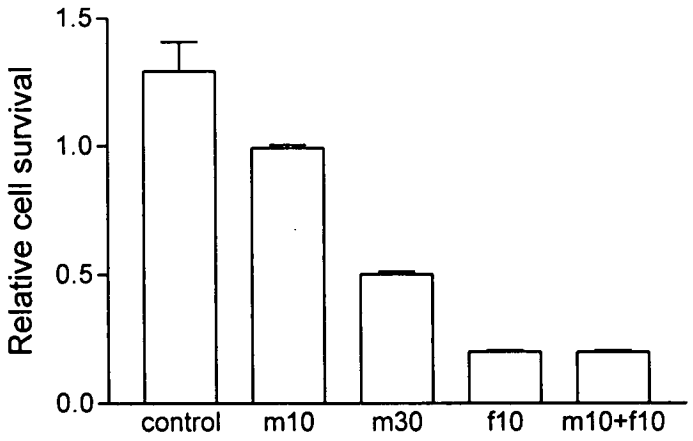

1.5
1.0
0.5
0.0
Relative cell survival
control
m10
m30
f10
m10+f10

FIG. 8

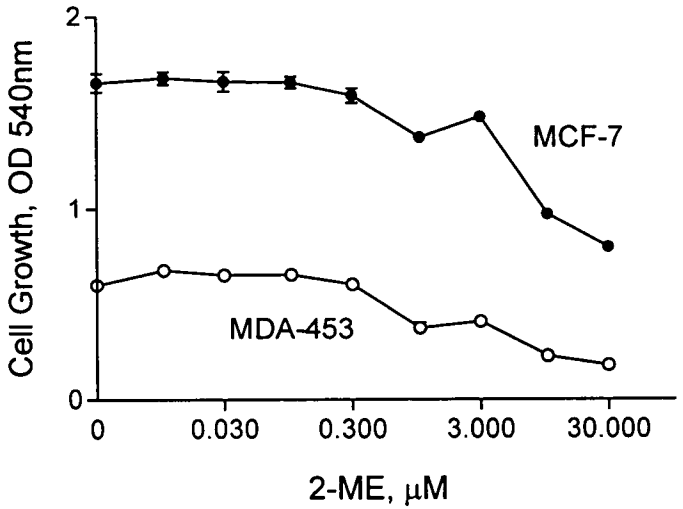

Cell Growth, OD 540nm
2
1
0
MCF-7
MDA-453
0
0.030
0.300
3.000
30.000
2-ME, μM

FIG. 9

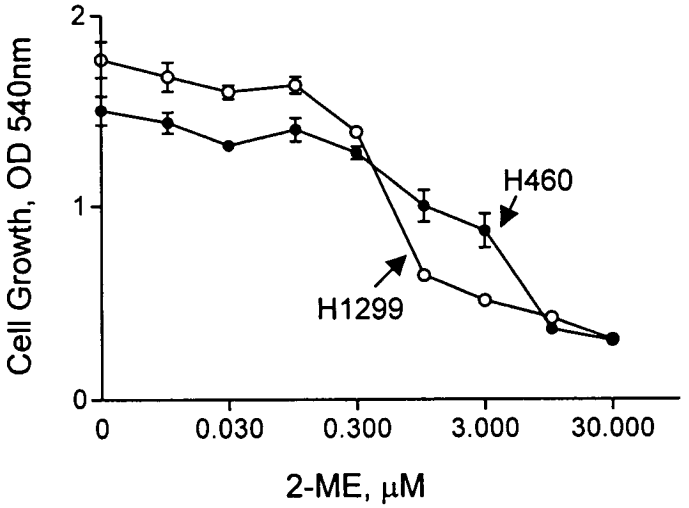
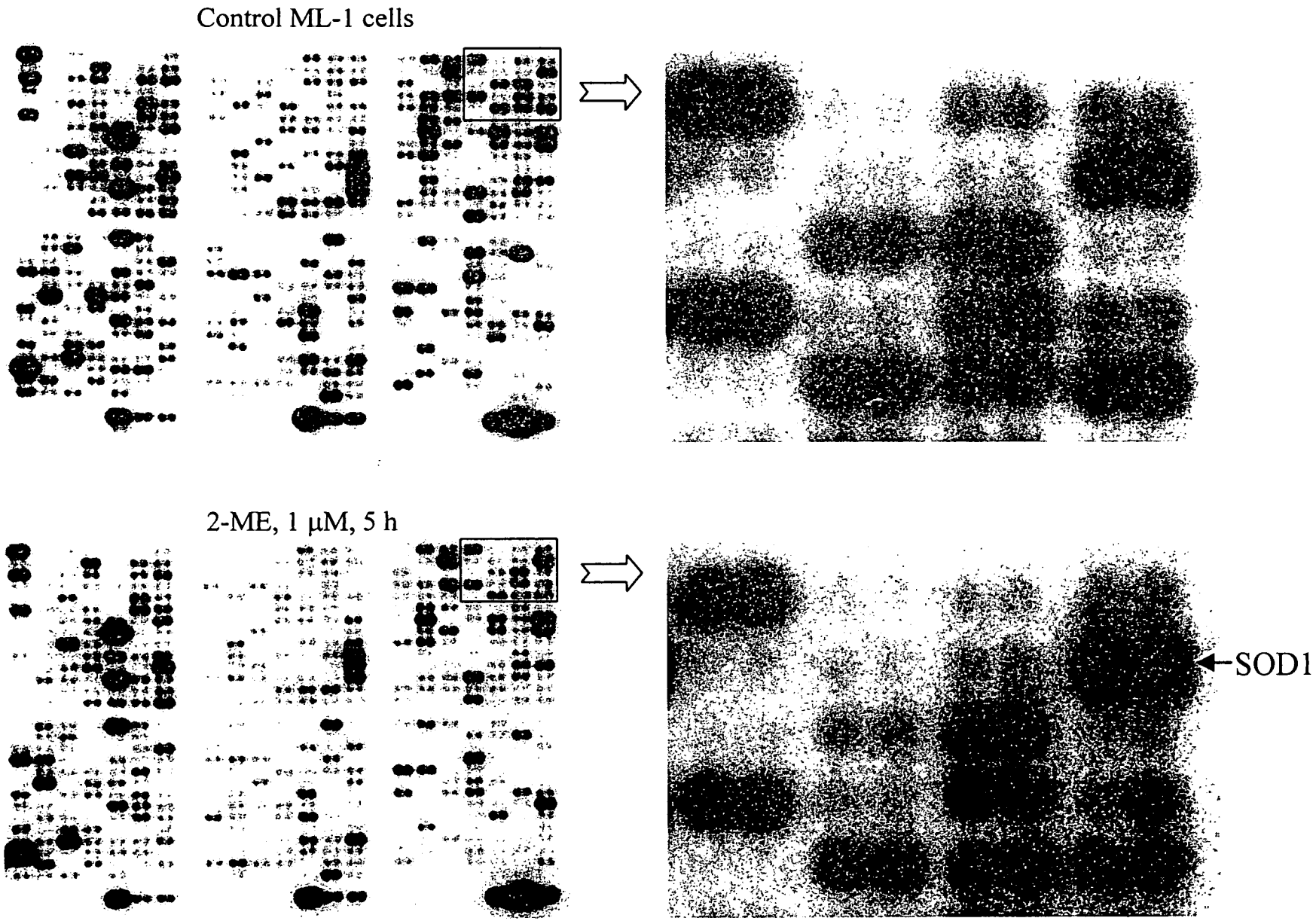

Cell Growth, OD 540nm
2
1
0
0
0.030
0.300
3.000
30.000
2-ME, μM
H460
H1299

FIG. 10

FIG. 11



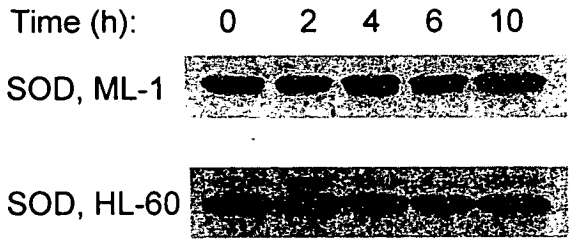


FIG. 12

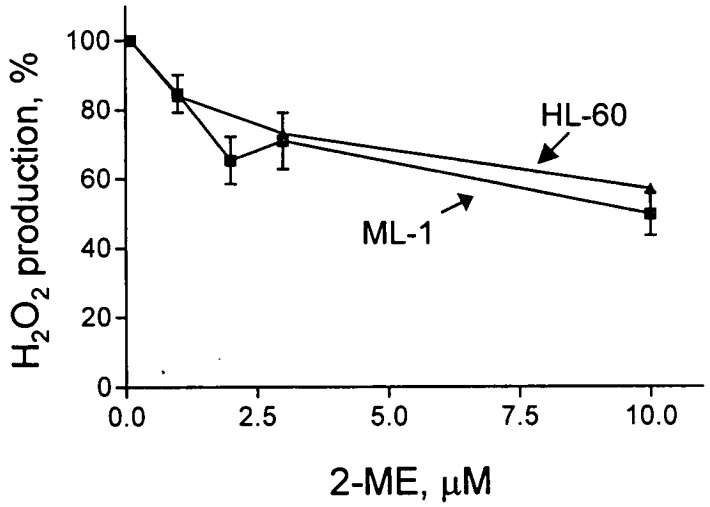


FIG. 13

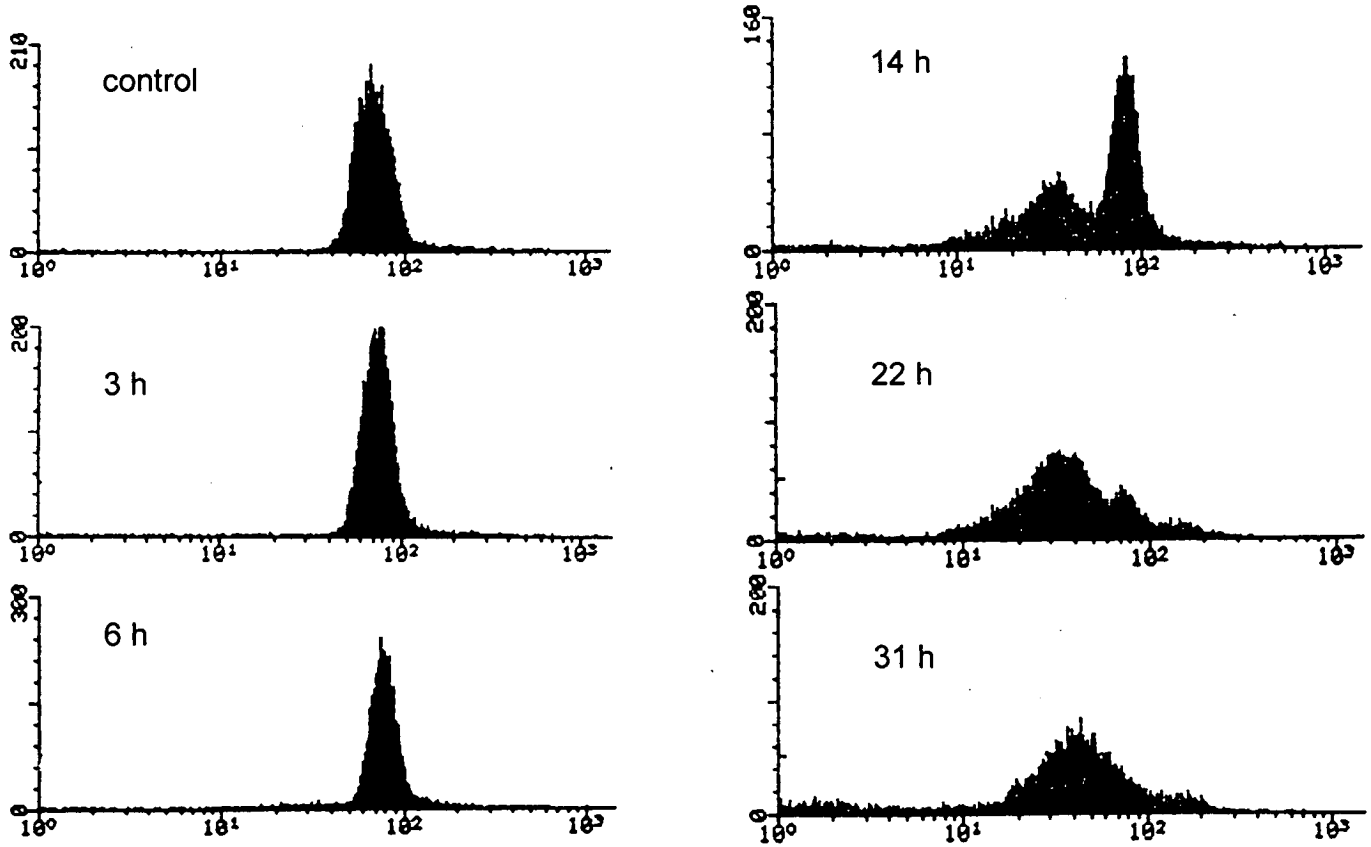


FIG. 14

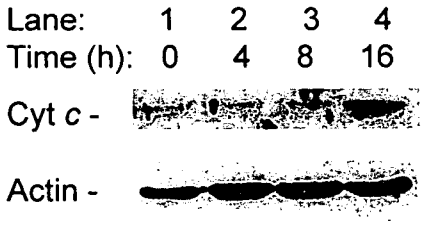


FIG. 15

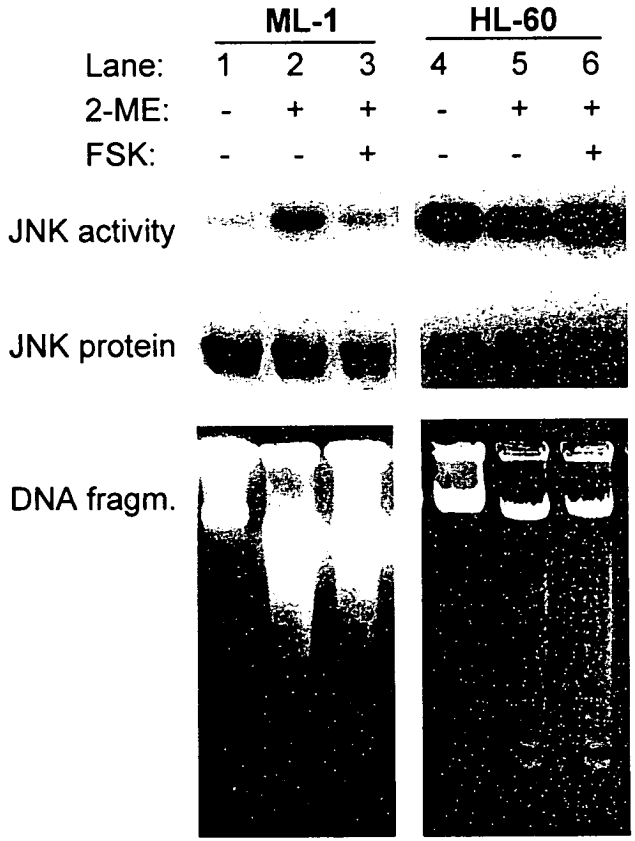

ML-1
HL-60
Lane: 1 2 3 4 5 6
2-ME: - + + - + +
FSK: - - + - - +
JNK activity
JNK protein
DNA fragm.

FIG. 16

FIG. 17A

FIG. 17B

FIG. 17C

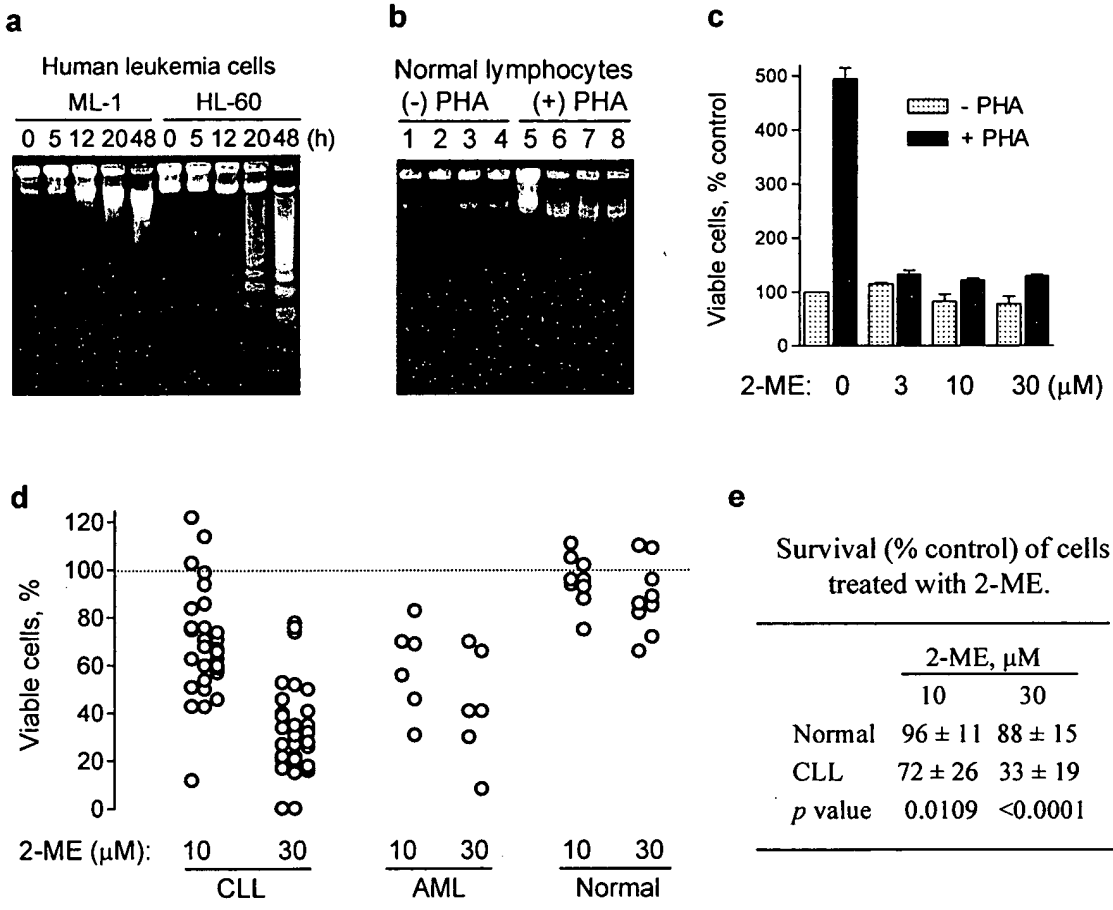


FIG. 17D

e

Survival (% control) of cells treated with 2-ME.

	2-ME, μM	
	10	30
Normal	96 ± 11	88 ± 15
CLL	72 ± 26	33 ± 19
p value	0.0109	<0.0001

FIG. 17E

FIG. 18A

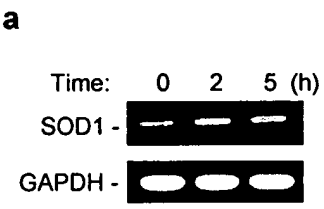
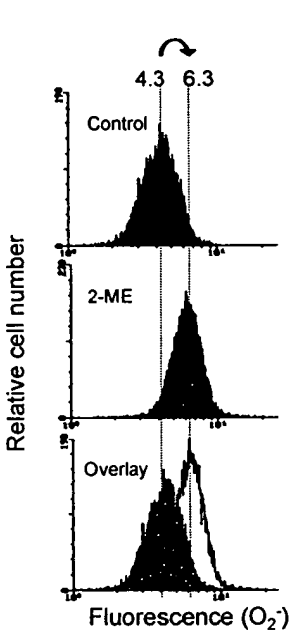


FIG. 18C



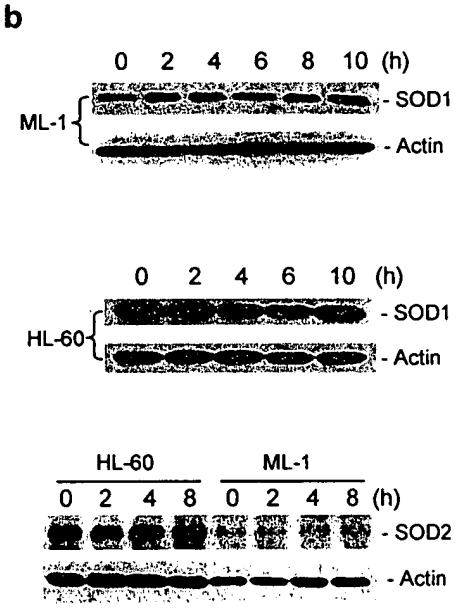


FIG. 18B

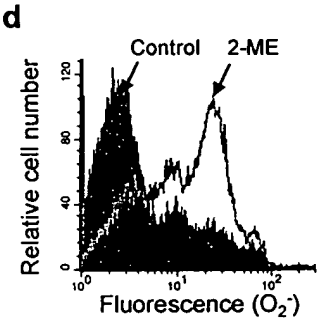


FIG. 18D

FIG. 19A

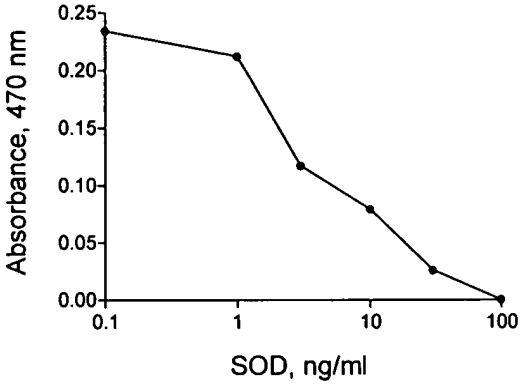
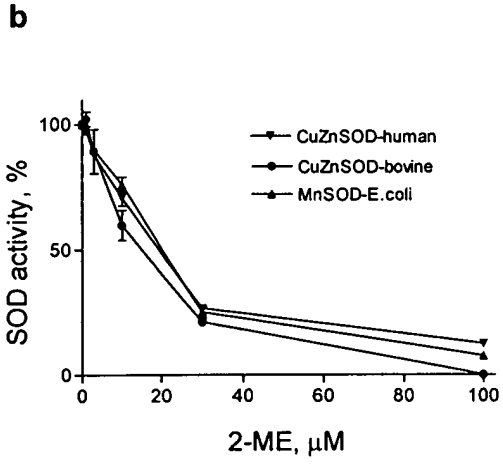


FIG. 19B



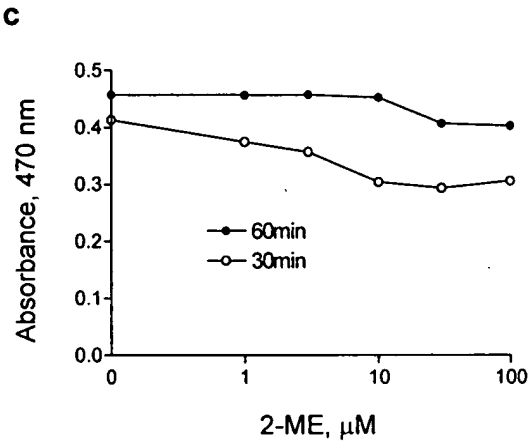


FIG. 19C

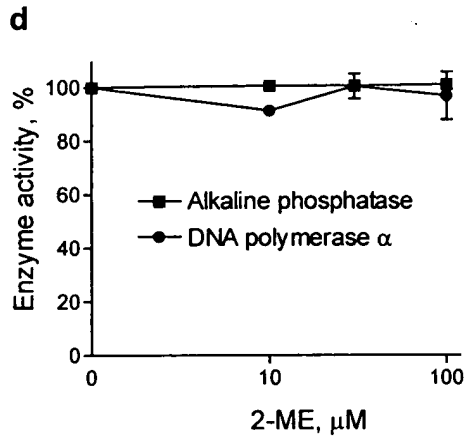


FIG. 19D

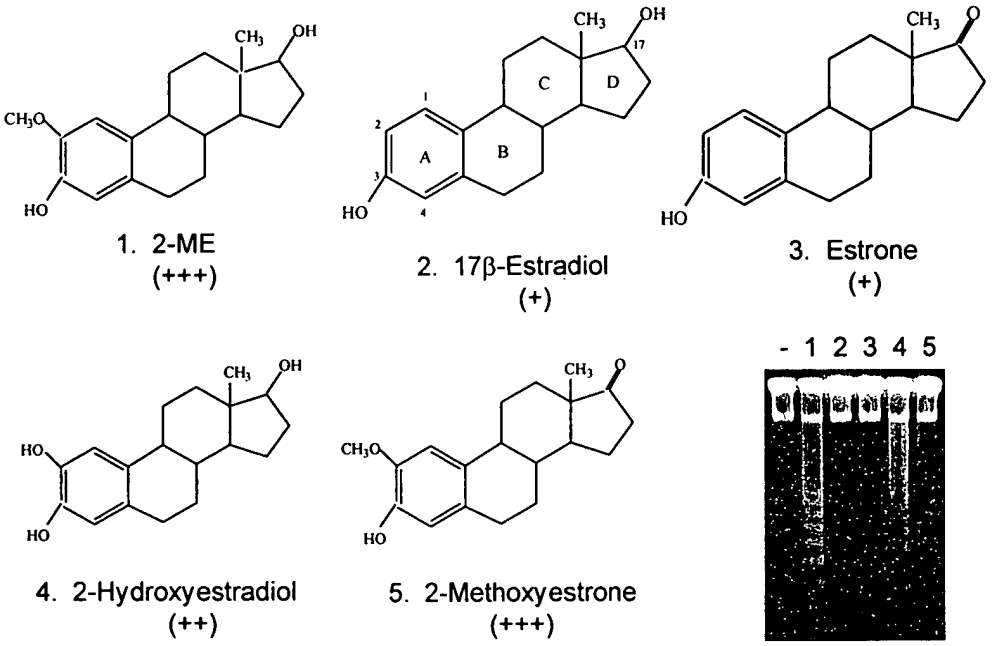

CH3
OH
CH3O
HO
1. 2-ME
(+++)
CH3
OH
17
C
D
1
2
A
B
3
HO
4
2. 17β-Estradiol
(+)
CH3
O
HO
3. Estrone
(+)
HO
CH3
OH
HO
4. 2-Hydroxyestradiol
(++)
CH3
O
CH3O
HO
5. 2-Methoxyestrone
(+++)
- 1 2 3 4 5

FIG. 20

FIG. 21A

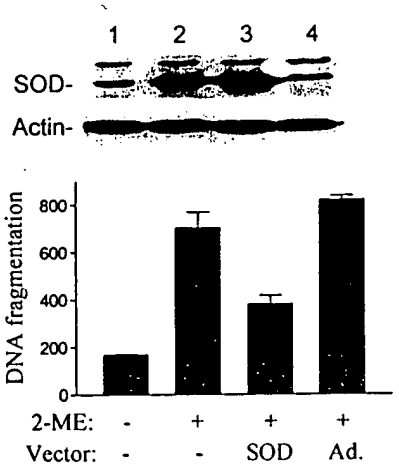


FIG. 21B

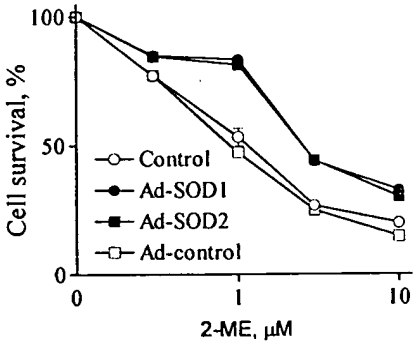


FIG. 21C

Colony formation (% control) in H1299 cells

2-ME	Vector		
(μM)	Ad-cont.	SOD1	SOD2
0	100	100	100
0.03	70	105	100
0.1	84	98	83
0.3	43	69	51
0.5	15	39	32
1.0	0	5	0

FIG. 21D

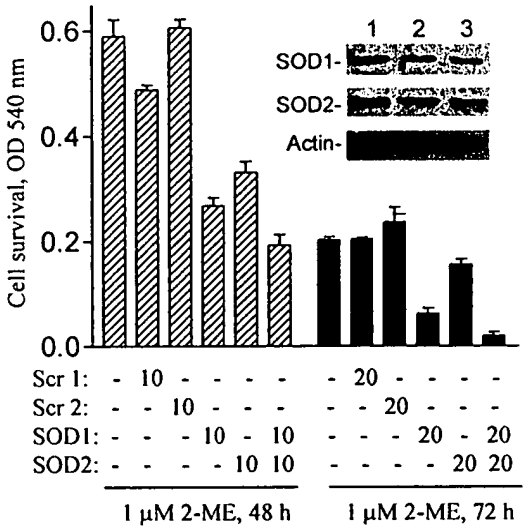


FIG. 21E

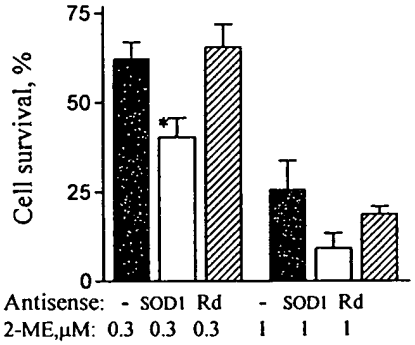


FIG. 21F

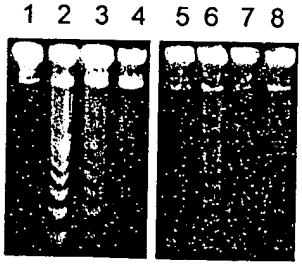


FIG. 22A

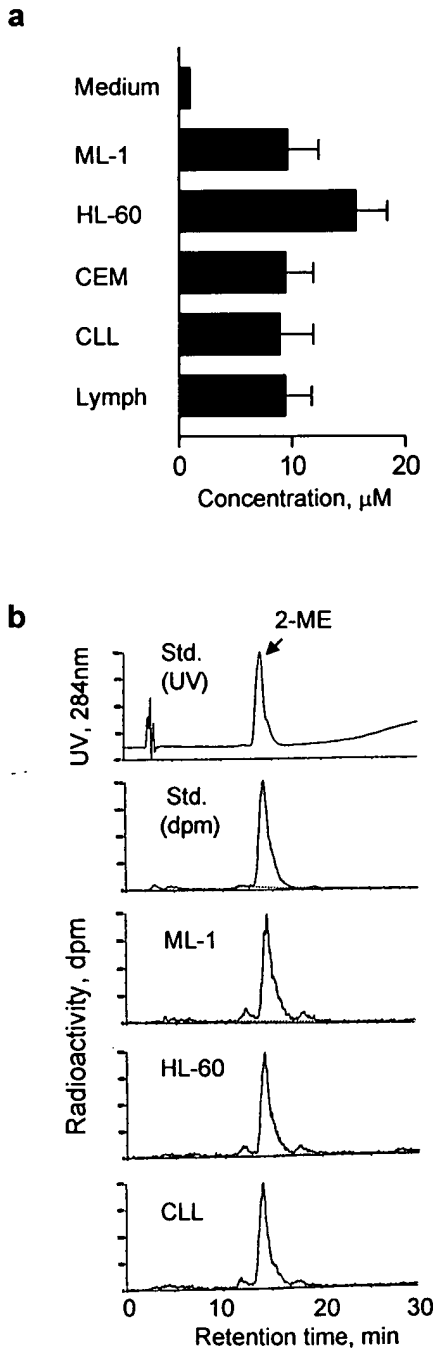


FIG. 22B

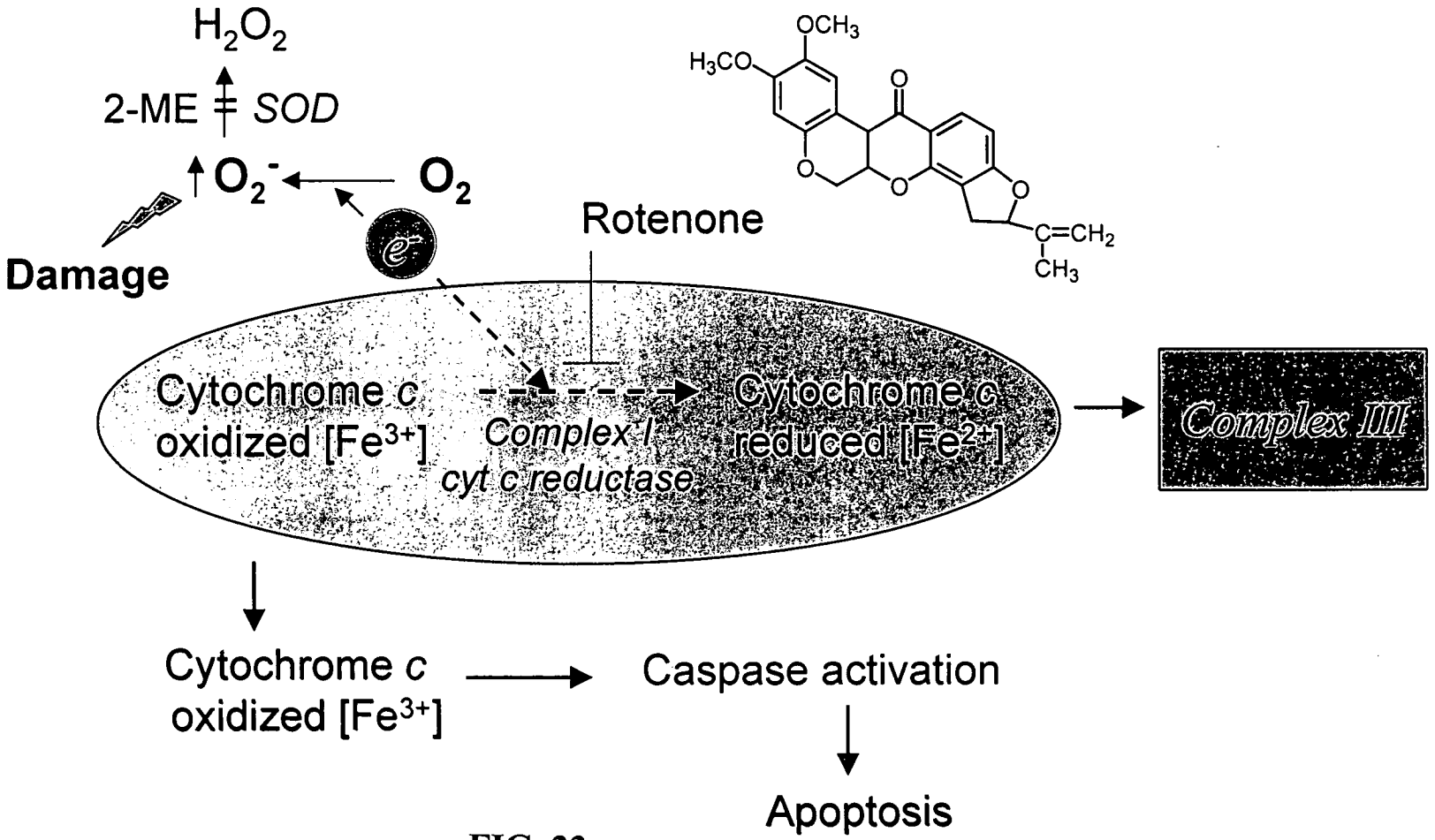
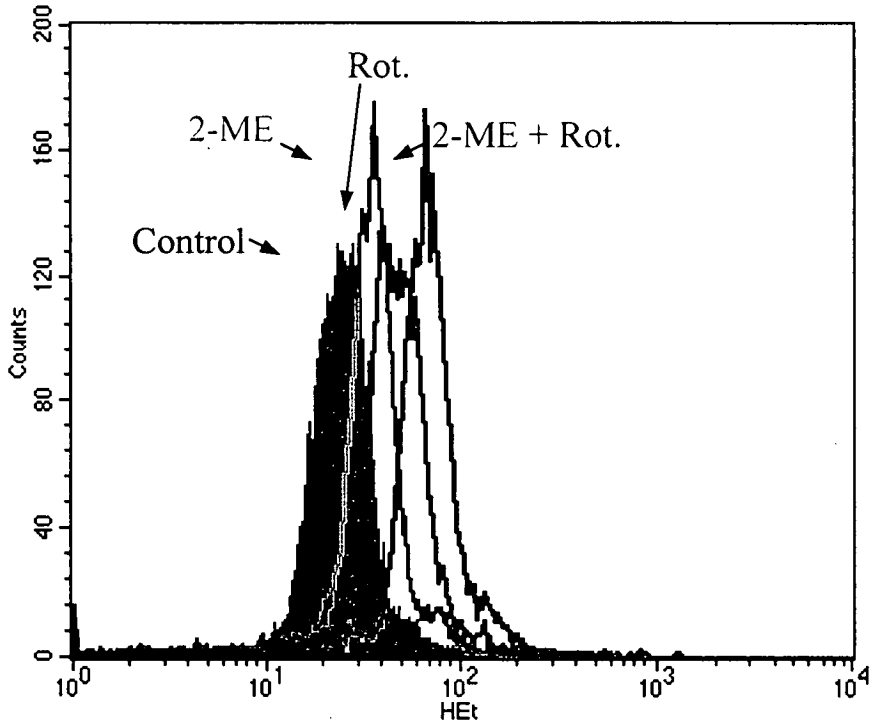

H_2O_2
2-ME
SOD
O_2^-
O_2
Damage
Rotenone
OCH_3
H_3CO
O
$C=CH_2$
CH_3
Cytochrome *c* oxidized [Fe^{3+}]
Complex I
cyt c reductase
Cytochrome *c* reduced [Fe^{2+}]
Complex III
Cytochrome *c* oxidized [Fe^{3+}]
Caspase activation
Apoptosis

FIG. 23



Cellular superoxide

FIG. 24

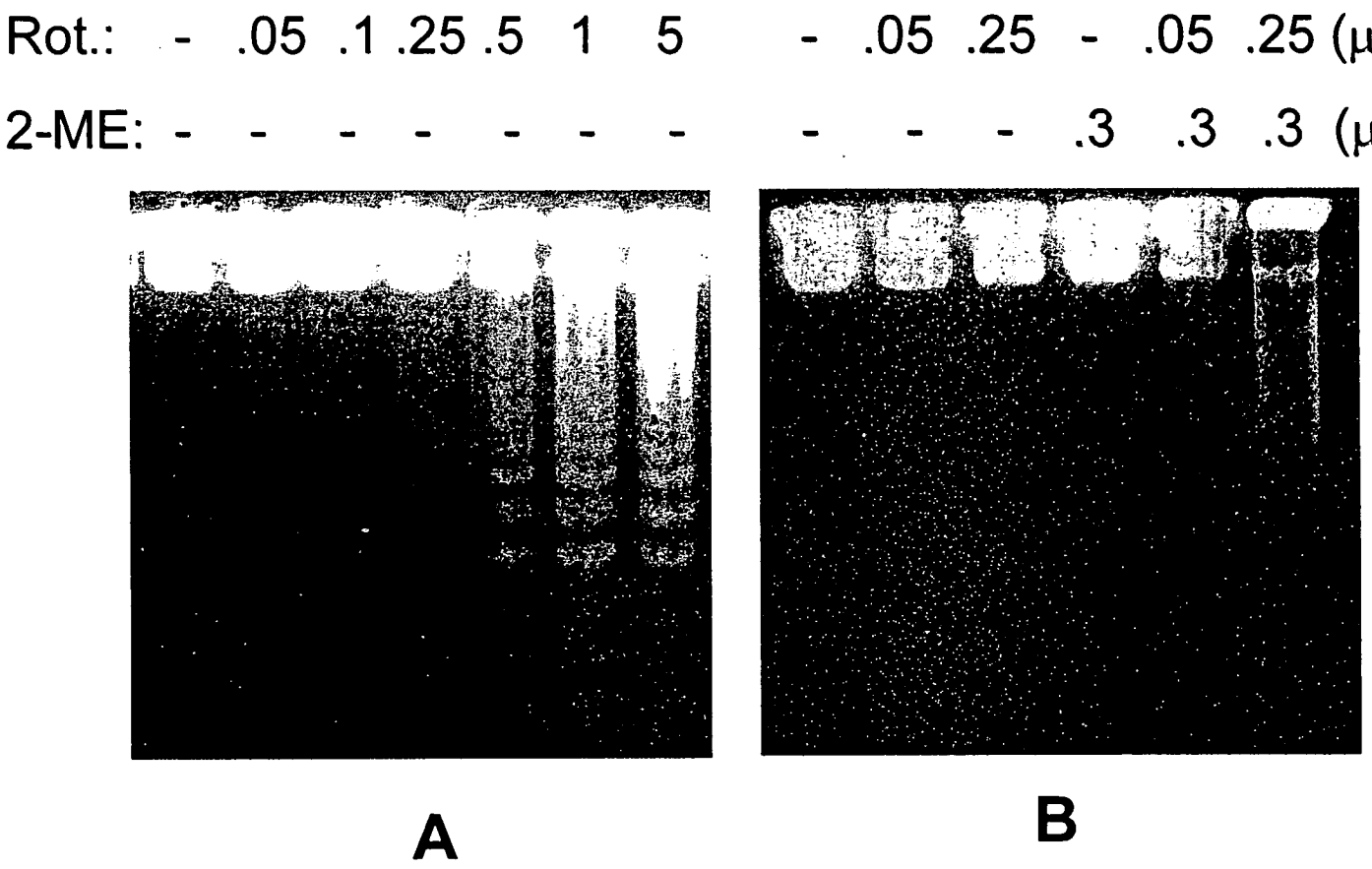


FIG. 25

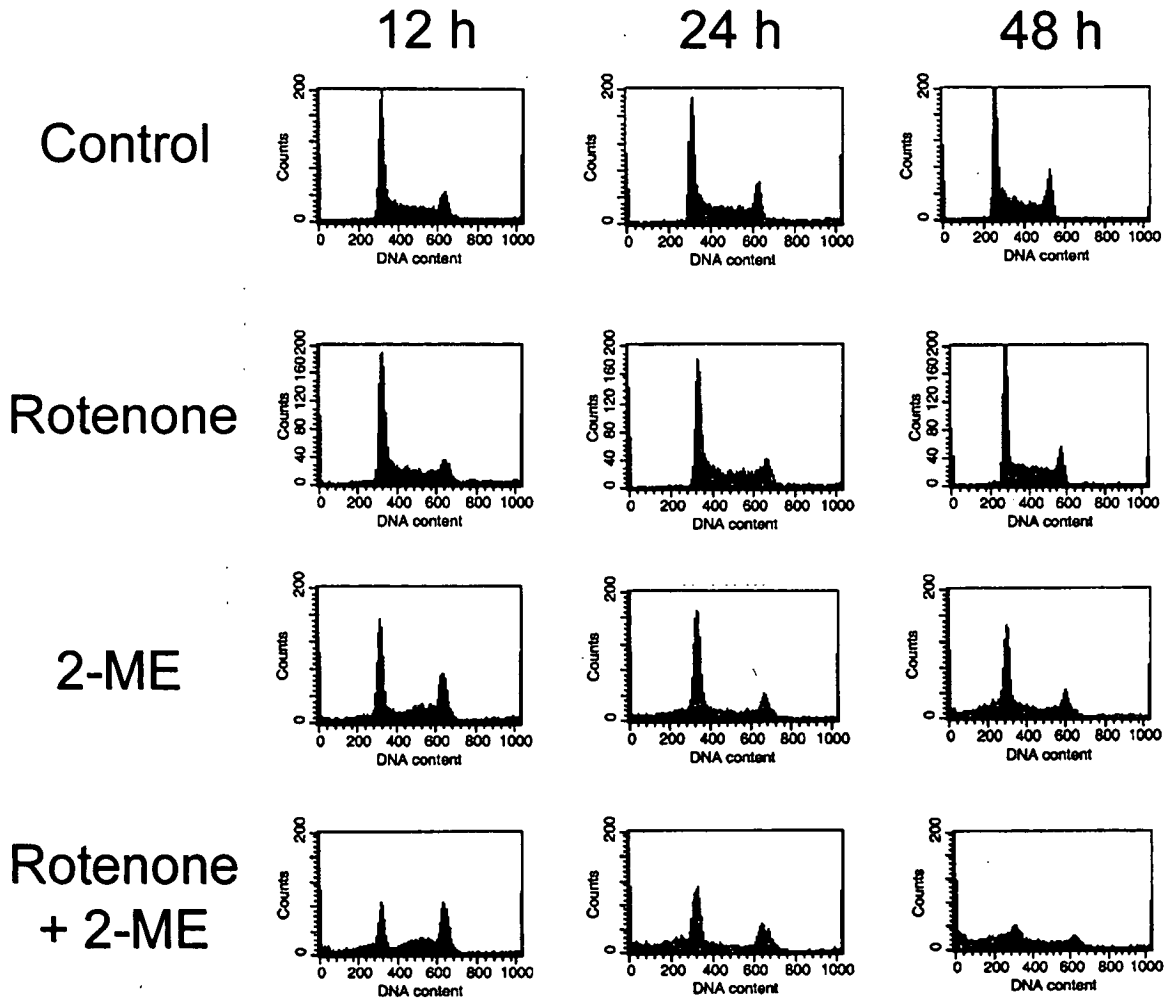

12 h
24 h
48 h
Control
Rotenone
2-ME
Rotenone + 2-ME
Counts
DNA content

FIG. 26

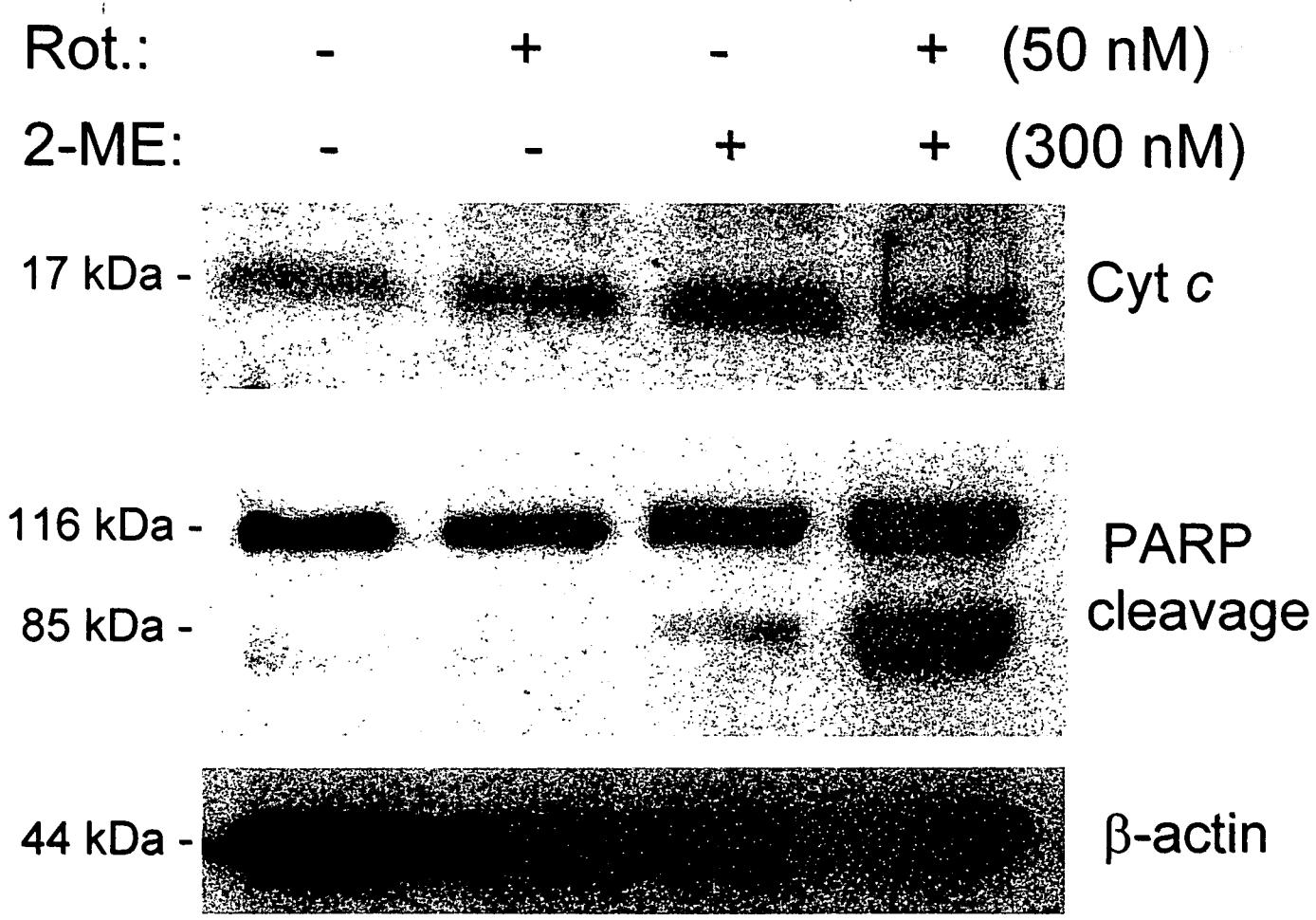

Rot.: - + - + (50 nM)
2-ME: - - + + (300 nM)
17 kDa -
Cyt c
116 kDa -
85 kDa -
PARP cleavage
44 kDa -
β-actin

FIG. 27

Drug, nM		Cellular NTP, μM			
Rot.	2-ME	ATP	CTP	UTP	GTP
-	-	761 ± 61	65 ± 6	174 ± 3	160 ± 10
50	-	651 ± 8	50 ± 3	146 ± 8	128 ± 4
-	300	711 ± 15	76 ± 4	181 ± 16	159 ± 1
50	300	506 ± 2	53 ± 1	117 ± 10	112 ± 3

FIG. 28

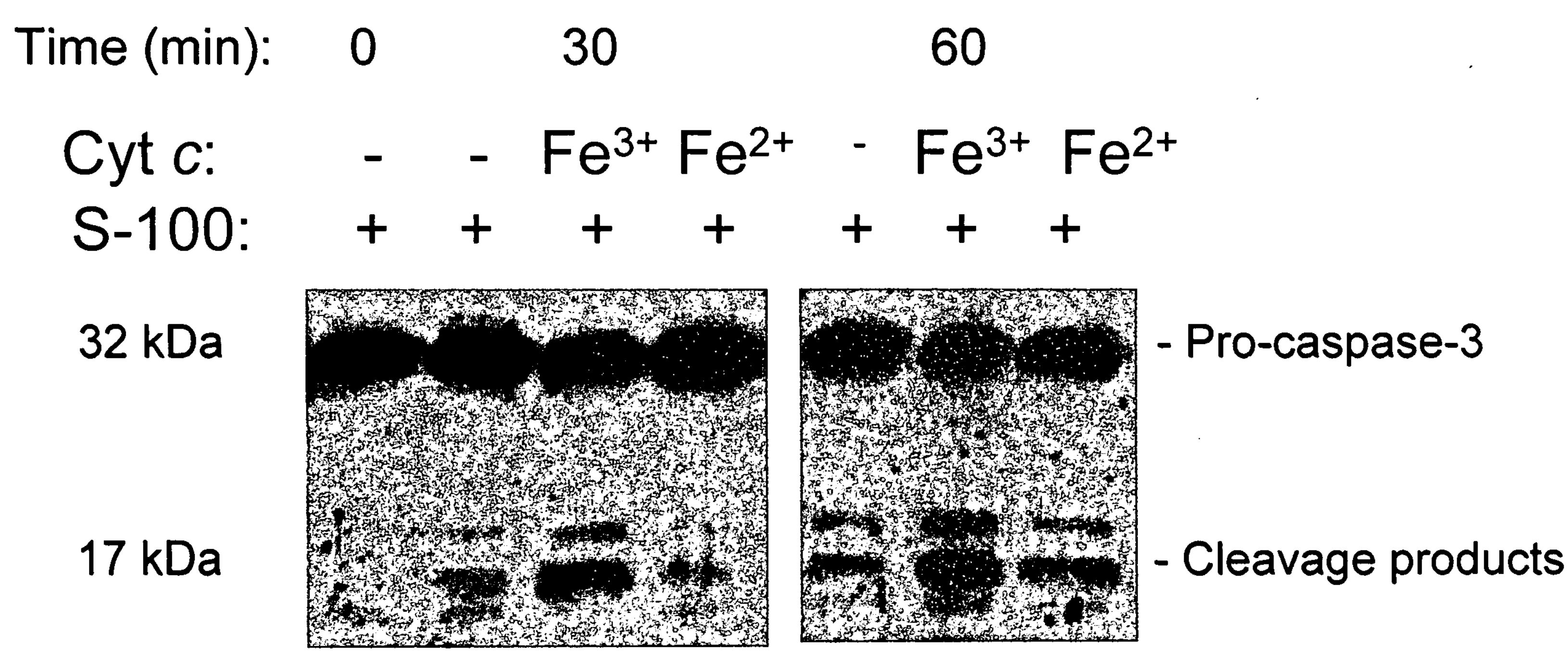


FIG. 29

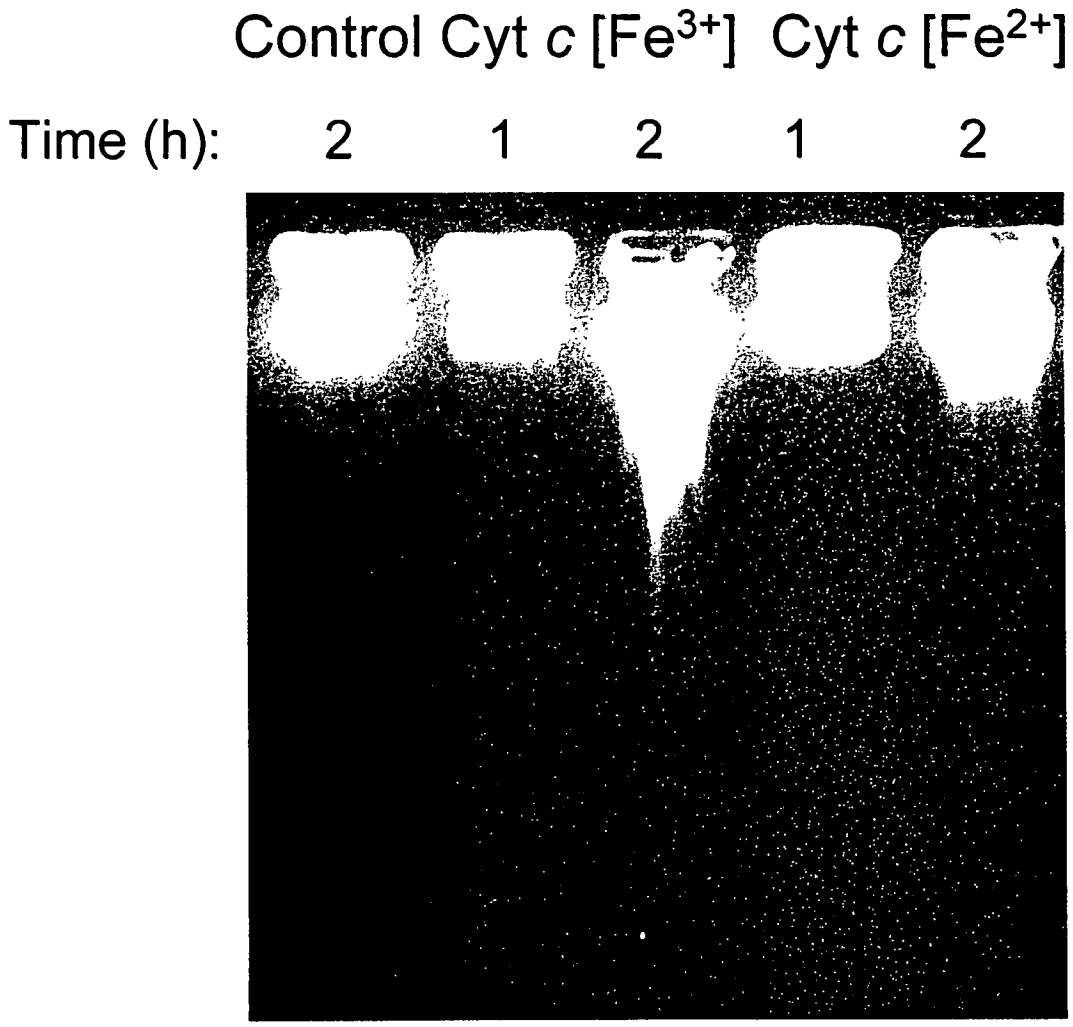


FIG. 30

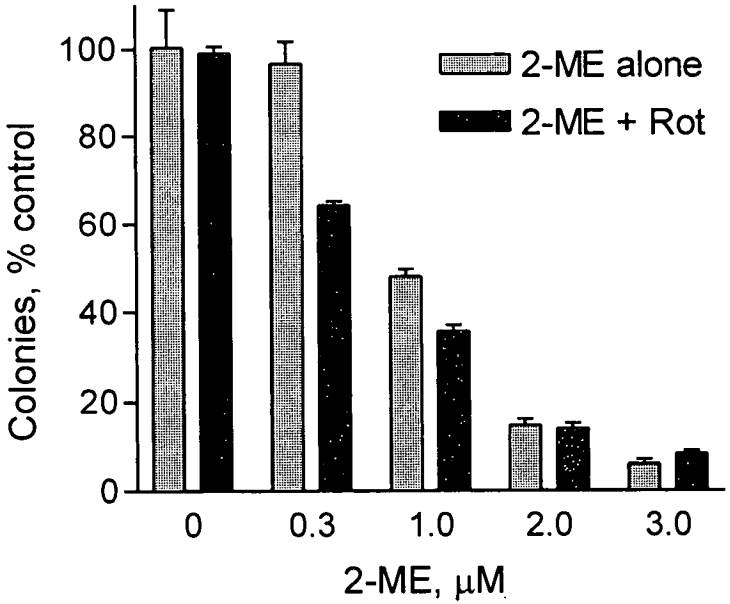

100
80
60
40
20
0
Colonies, % control
2-ME alone
2-ME + Rot
0
0.3
1.0
2.0
3.0
2-ME, μM

FIG. 31

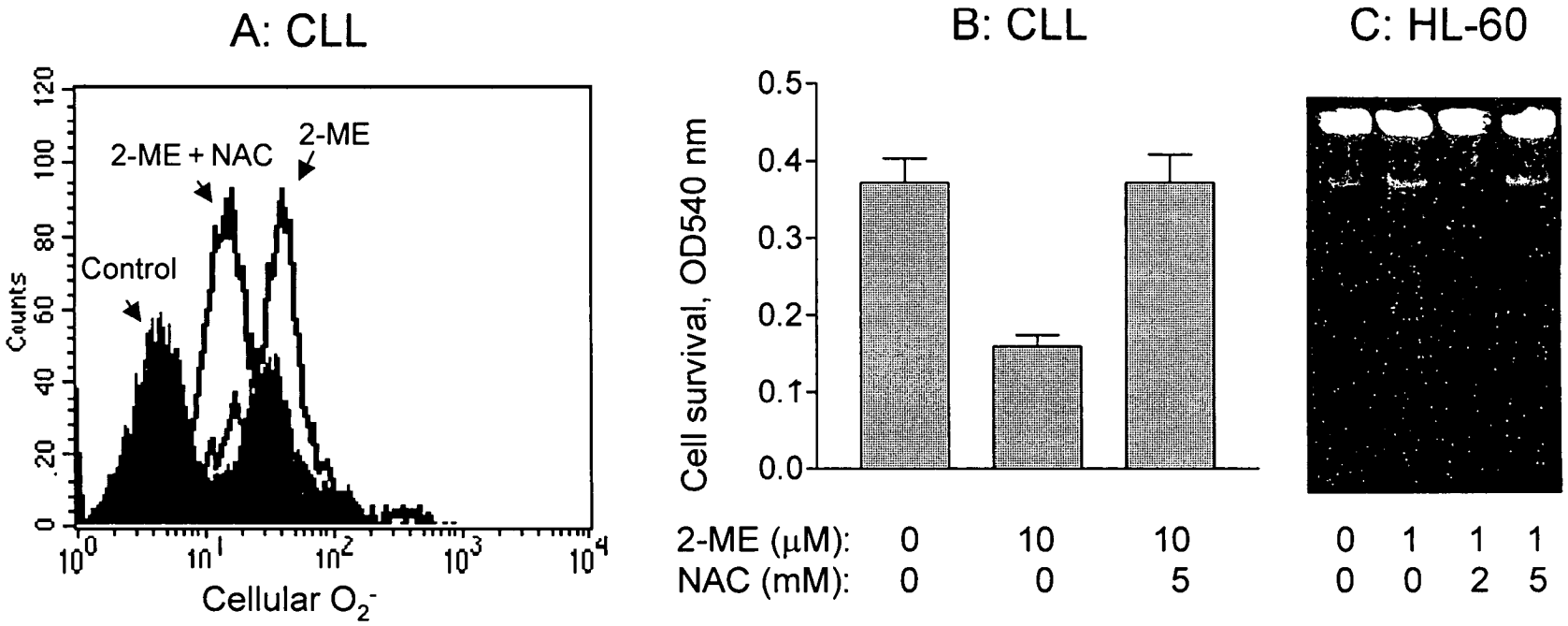

A: CLL
2-ME + NAC
2-ME
Control
Counts
Cellular O_2^-
B: CLL
Cell survival, OD540 nm
2-ME (μM): 0 10 10
NAC (mM): 0 0 5
C: HL-60
0 1 1 1
0 0 2 5

FIG. 32

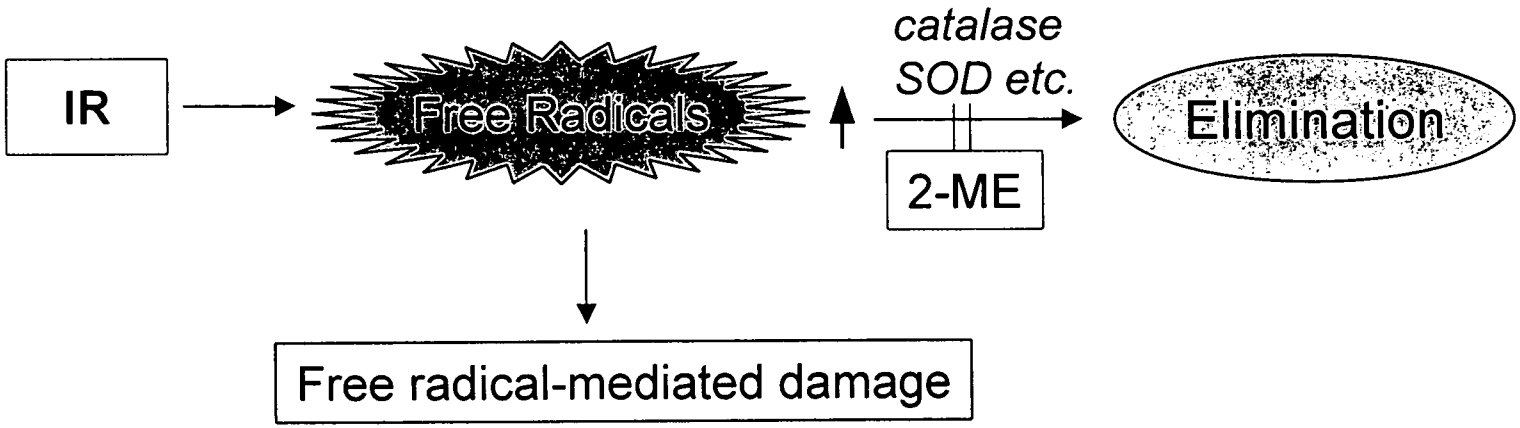

IR
Free Radicals
catalase
SOD etc.
2-ME
Elimination
Free radical-mediated damage

FIG. 33

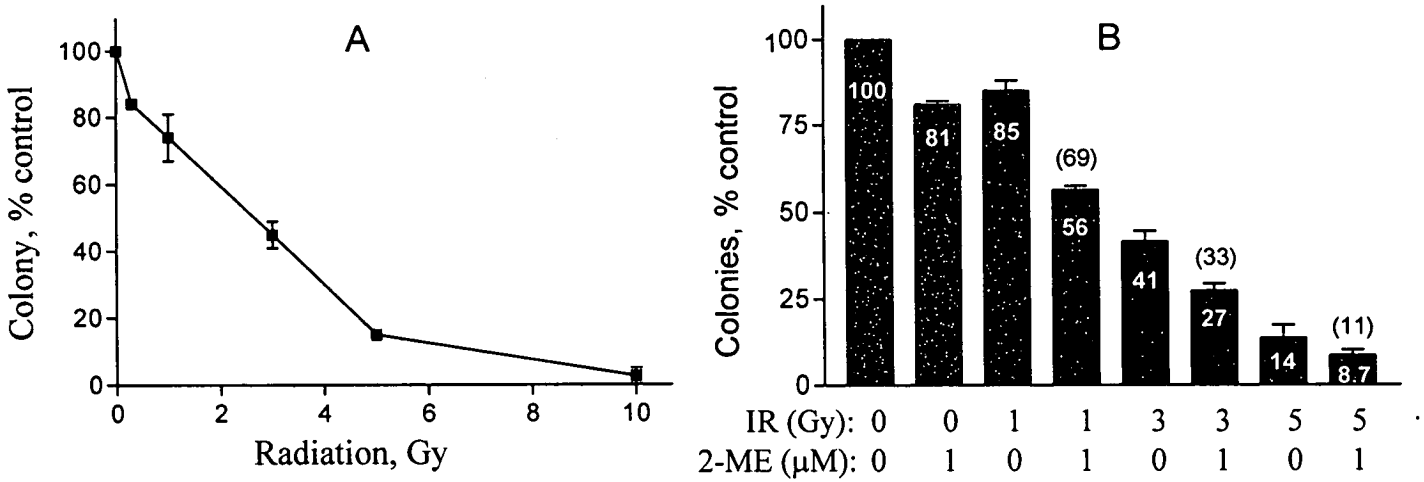

A
Colony, % control
100
80
60
40
20
0
0
2
4
6
8
10
Radiation, Gy
B
Colonies, % control
100
75
50
25
0
100
81
85
(69)
56
41
(33)
27
14
(11)
8.7
IR (Gy): 0 0 1 1 3 3 5 5
2-ME (μM): 0 1 0 1 0 1 0 1

FIG. 34

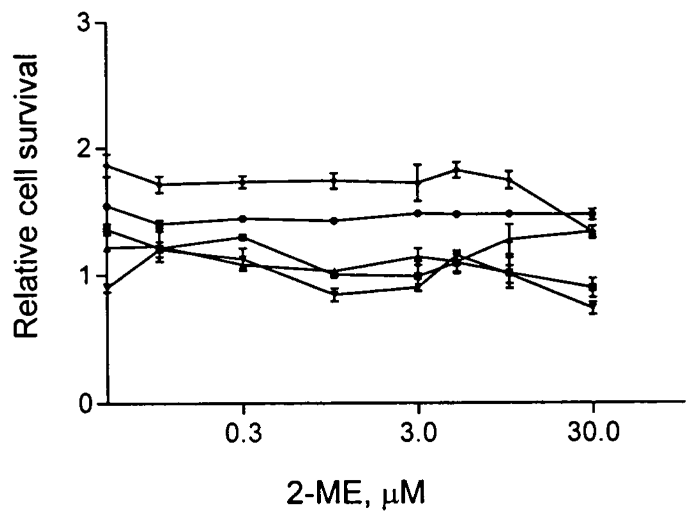


FIG. 35

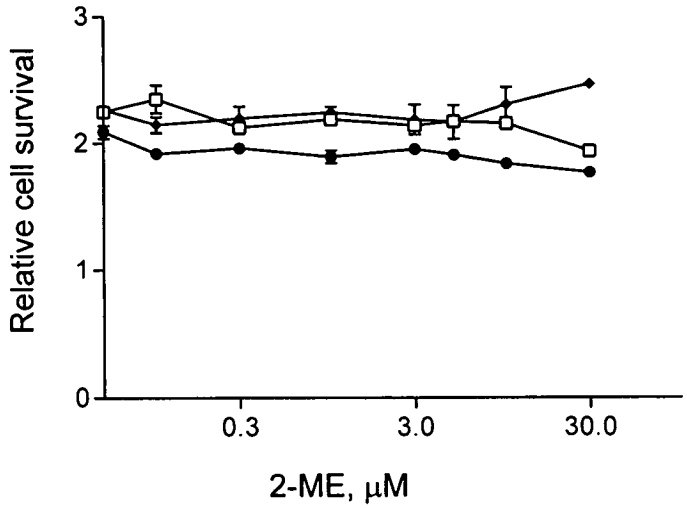


FIG. 36

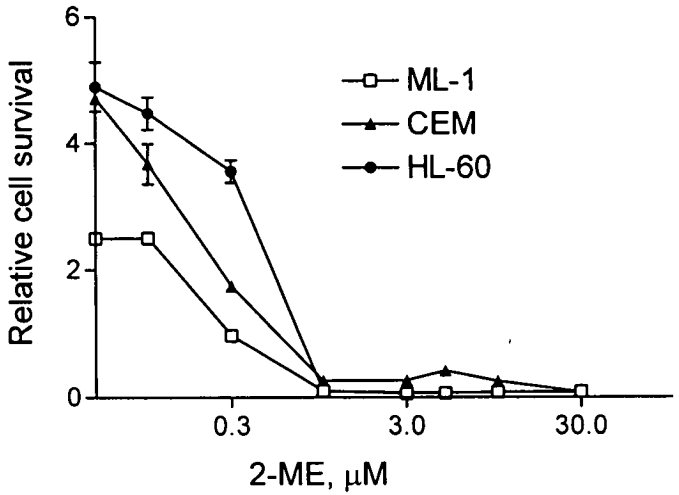


FIG. 37

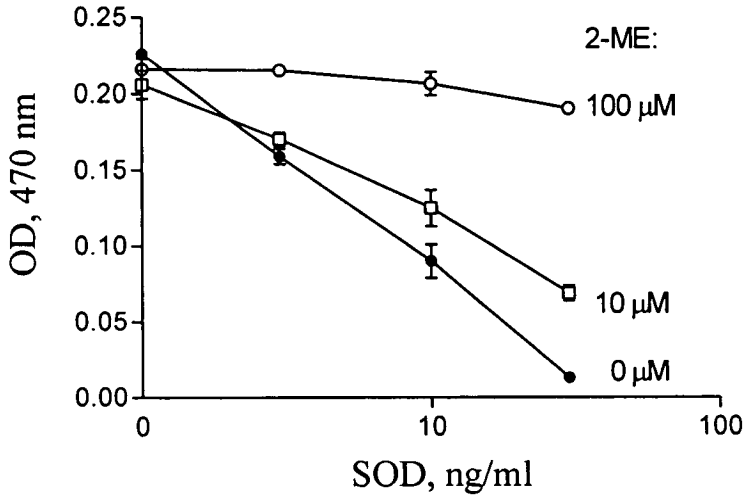

0.25
0.20
0.15
0.10
0.05
0.00
OD, 470 nm
0
10
100
SOD, ng/ml
2-ME:
100 μM
10 μM
0 μM

FIG. 38

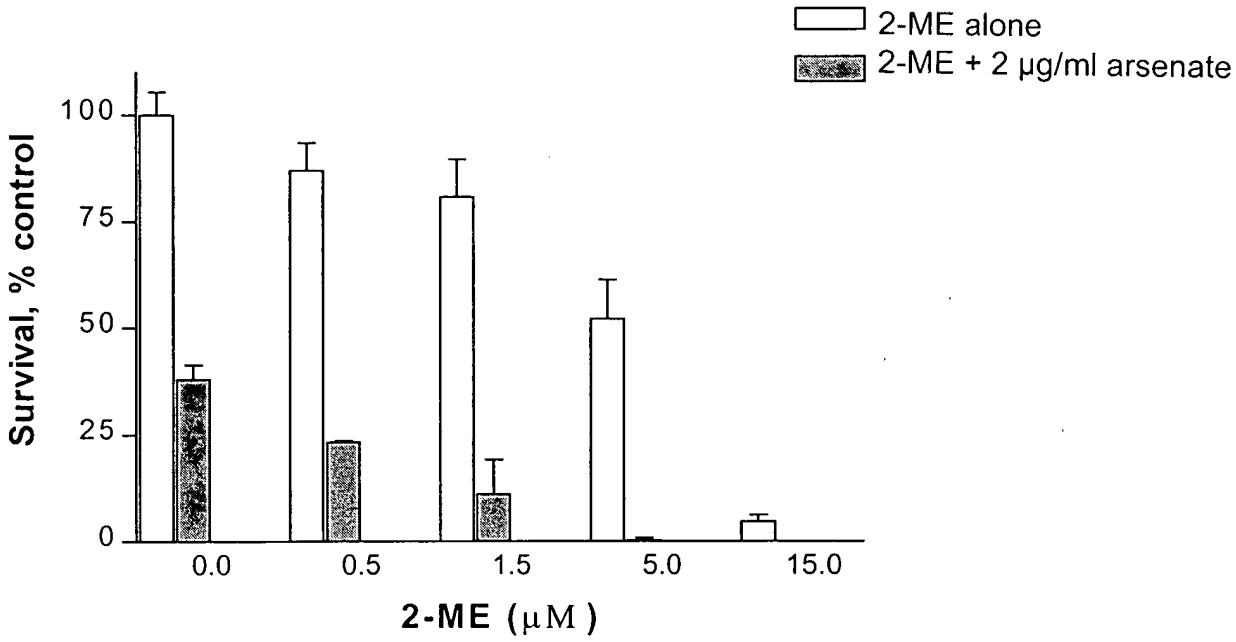

2-ME alone
2-ME + 2 µg/ml arsenate
Survival, % control
100
75
50
25
0
0.0
0.5
1.5
5.0
15.0
2-ME (µM)

FIG. 39

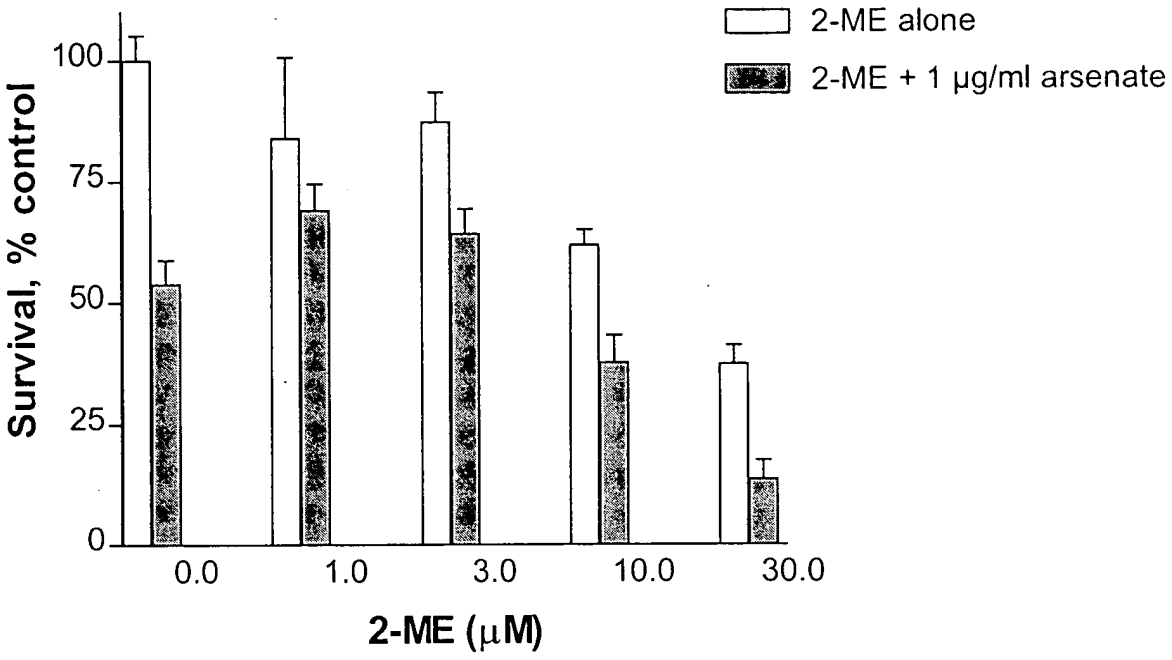

2-ME alone
2-ME + 1 µg/ml arsenate
Survival, % control
100
75
50
25
0
0.0
1.0
3.0
10.0
30.0
2-ME (µM)

FIG. 40

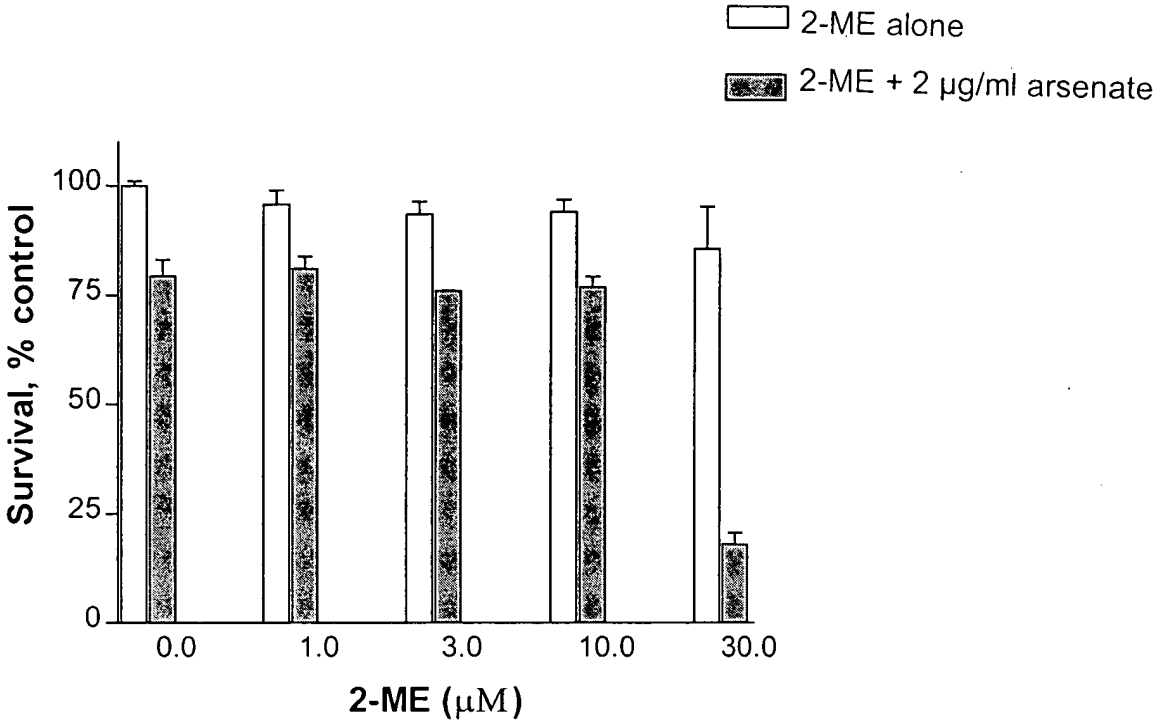

2-ME alone
2-ME + 2 µg/ml arsenate
Survival, % control
100
75
50
25
0
0.0
1.0
3.0
10.0
30.0
2-ME (µM)

FIG. 41

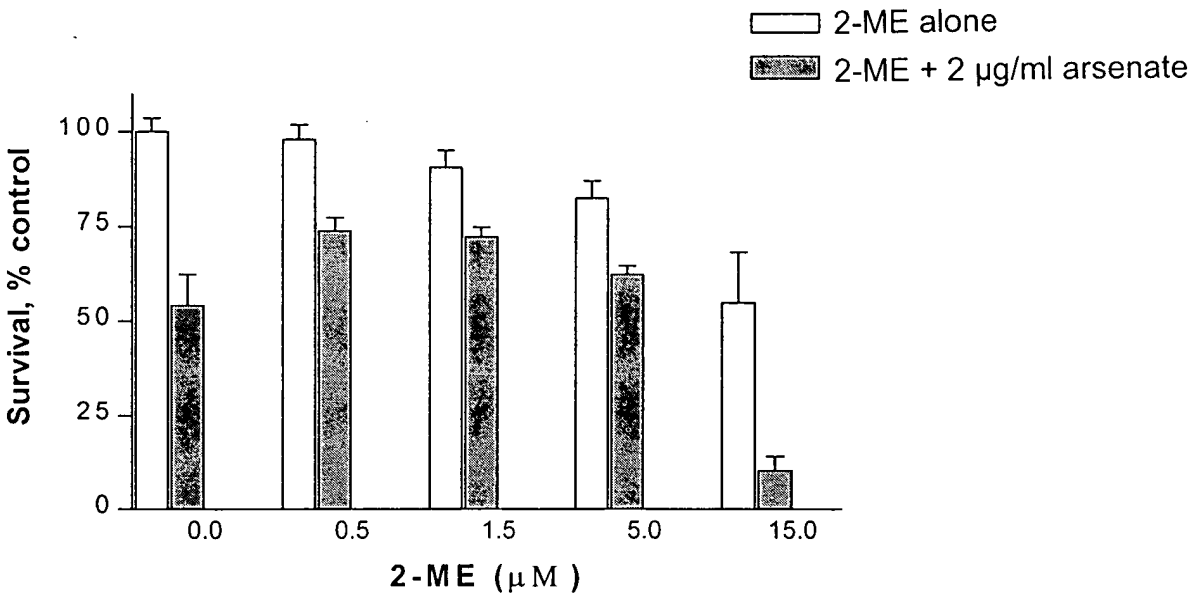

2-ME alone
2-ME + 2 µg/ml arsenate
Survival, % control
100
75
50
25
0
0.0
0.5
1.5
5.0
15.0
2-ME (µM)

FIG. 42

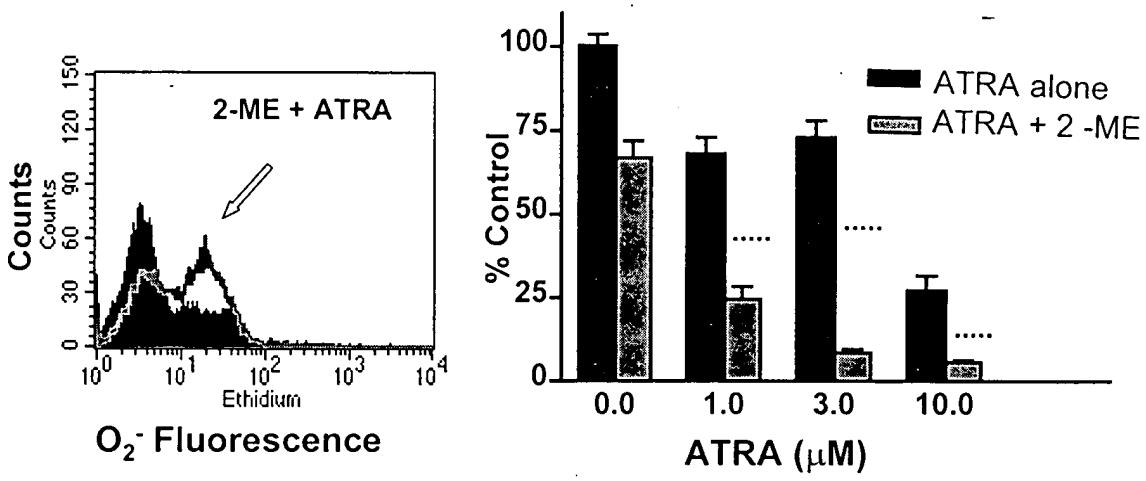


FIG. 43